

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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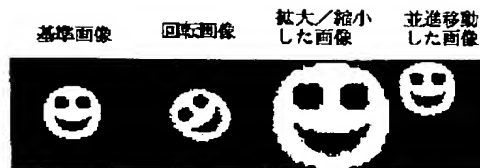
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INVENTOR : MORGAN MCGUIRE;

INT.CL. : G06T 7/00 G06T 3/00 G06T 5/20

TITLE : IMAGE ALIGNING METHOD

(A)



(B)



ABSTRACT : PROBLEM TO BE SOLVED: To improve image alignment accuracy by separating the rotation parameter of the rotation-scale-translation(RST) conversion, a scaling change parameter and a translation shift parameter between a reference image and a pattern image from each other for securing the alignment between both images using a Fourier-Mellin invariant.

SOLUTION: In this positioning method applied between a reference image and a pattern image, these images are different from each other by the RST conversion that is defined by a scaling coefficient, a rotation coefficient and a translation vector. The rotation, scaling and translation shift parameters are separated from each other between the reference and pattern images for securing the alignment between both images using a Fourier-Mellin invariant. A contour line plot of a non-zero coefficient is shown (B) among the Fourier-Mellin coefficients of four types of images (A) respectively. In regard to this reference image, the rotation of an angle  $\phi$  of a pixel area is equivalent to the rotation of an angle  $-\phi$  of a Fourier-Mellin area, for example.

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